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Design and Development of an Programmable Power Supply

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TECHNICAL REPORT OF THE DESIGN AND DEVELOPMENT OF AN PROGRAMMABLE POWER SUPPLY

FOR

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ABSTRACT
OF
PROGRESS REPORT FOR THE DESIGN OF
PROGRAMMABLE POWER SUPPLY

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This report presents the results of Senior Design Phase I and Phase II. The subject of this report is the design and construction of a Programmable Power Supply. The Programmable Power Supply is divided into two modules, the Controller, and The Power Supply. The use of modular construction give flexibility to the design of the system. Each module can be designed by separate engineers, there by reducing development time and design effort.

The Power Supply (designed by Mike Boschet) utilizes off-the-shelf parts. The reference voltage for the voltage regulators is supplied by an D-to-A converter. The use of the D-to-A converter allows the regulators to be programmed using a digital output from an external controller.

The Power Supply Controller (designed by Fred King) is designed around a microcomputer. The microprocessor is used to reduce cost, power consumption, and construction time. The Controller communicates with the Power Supply by sending 8-bit words through an external bus. The Controller reads input from the operator through the keyboard and calculates the proper bit pattern to be sent over the buss to the Power Supply.

The report details operation of the Power Supply and Controller. Benefits of the design and problems incurred with the design are also noted in the report.

TABLE OF CONTENTS

TABLE OF FIGURES

FIGURE